

Notice of Allowability

Application No.

10/810,405

Examiner

Charles Chow

Applicant(s)

YOUNG ET AL.

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2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/15/2007.
2. ☒ The allowed claim(s) is/are 41-70.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>4/2/2007</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Detailed Action

1. This office action is for RCE filed on 3/15/2007.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment has been given from attorney Ognyan Beremski in a telephone interview on April 2, 2007.

Claim 40 has been cancelled & **claims 51-60** are amended as follows:

In line 1 of claim 51, replacing the words "machine-readable storage" with ----computer-readable medium----.

In lines 4 of claim 51, replacing the word "machine" in "machine for causing the machine" with ----computer for causing the computer----.

In lines 1 of each claim in claims 52-60, replacing the words "machine-readable storage" with ----computer-readable medium----.

Allowable Subject Matter

3. The following is an examiner's statement of reasons for allowance:

Claims 41-70 are allowable over the prior art of record. The prior arts fail to teach the allowable features, singly, particularly, or in combination.

Applicant has canceled claims 1-40, & for the added new claims 41-70, it contain the allowable features in the independent claims 41, 51, 61, [Fig. 6-7], for the converting

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plurality of narrowband signals to the corresponding digital signals & calculating intermediate gain, for each at least a portion of the plurality of digital narrowband signals, based on the power & clipping condition of the plurality of digital narrowband signals, and adjusting a final gain in below:

generating a plurality of narrowband signals from said received RF signals;
converting said at least a portion of said generated plurality of upstream narrowband signals to corresponding digital signals;

calculating an intermediate gain, for each of said at least a portion of said generated plurality of upstream narrowband signals based on a power of each of said corresponding digital signals and based on whether said of each of said corresponding digital signals is clipped; and

adjusting a final gain of said received RF signal based on said calculated intermediate gain of each of said at least a portion of said generated plurality of upstream narrowband signals.

The dependent claims are also allowable due to their dependency upon the allowable independent claims above and the having additional claimed features.

The closest prior art **Kang [US 6,498,927 B2]** teaches the improving of dynamic range in a wireless system 800 [Fig. 8 & abstract, the dynamic range in col. 9, lines 11-22], the plural variable gain amplifiers VGA 830, 846, 862 [Fig. 8; col. 8, lines 35-62], monitoring the power level [col. 9, lines 5-22 & Fig. 9, col. 9, lines 30-37], the reducing the gain of the selected stage [col. 9, lines 34-67], but fails to teach converting plurality of narrowband signals to corresponding digital signals & calculating intermediate gain for each at least a portion of the plurality of digital narrowband signal, based on the power & clipping condition of the plurality of digital narrowband signals.

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Sullivan [US 5,451,955] teaches the converting of rf signal into plurality of digital signals via the plurality of ADC 28 [Fig. 1] for the sequentially connected gain stages 12-16. The ADC 20 are coupled to the amplifier gain stages 12-16 via couplers 22, diode 24, but fails to teach other allowable features which are missed by Kang.

Oshima et al. [US 2003/0218,501 A1] teaches the ADC 610 for converting output signal of plurality serially connected amplifiers 601, 603, 605 via switch 609 for the generating the gain control signals via gain controller 613 to 601-605 [Fig. 13 & its corresponding description in specification], but fails to teach the above features missed by Kang & Sullivan.

Other prior arts in below were also considered, but they fail to teach the above allowable features.

Ichihara [US 2002/0047,744 A1] teaches the serially coupled variable gain amplifiers 102-104, the gain converting circuit 113, the gain distribution circuit for controlling the gain having limiting value [Fig. 1-5, abstract].

Wada et al. (US 6,304,206 B1) teaches the ADC converters 309 directly connected to the operational amplifiers 302, 311a-313 in Fig. 1.

Other references are also considered. They are: **Katsura et al. [US 6,373,907 B1]**, **Brobst et al. [US 7,031,409 B2]**, **Sochima [US 2003/0218,501 A1]**, **Loper [US 5,095,536]**, **Akamine et al. [US 2004/0121,746 A1]**, **Matsuura et al. [US 5,274,377]**, **Ono et al. [US 2004/0180,643 A1]**, **Nelson [US 4,823,129]**, **Kotzin et al. [US 5,392,044]**, **Husted et al. [US 2003/0012,313 A1]**, **Muto [US 5,438,691]**.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

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issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow *CC*

March 28, 2007.


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